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Xerox Corporation
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100 Clinton Ave. S.
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DOTE, JANIS L	
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Please find below and/or attached an Office communication concerning this application or proceeding.

1. The examiner acknowledges the cancellation of claim 3 and the amendments to claims 1, 2, 8-11, 13-16, 19, 22, and 23, filed in Paper No. 8 on Sep. 12, 2003. Claims 1, 2, and 4-27 are pending.

The amendment to the claims filed in Paper No. 6 on Aug. 14, 2003, was not in compliance with 37 CFR 1.121, for the reasons discussed in the "Notice of Non-Compliant Amendment" mailed on Sep. 2, 2003, Paper No. 7. Accordingly, the amendment to the claims in Paper No. 6 has not been entered.

2. The examiner interprets the phrase "the aryl amine contains X, having from about 1 to about 12 carbon atoms" (emphasis added) in the amended paragraph beginning at page 6, line 4, of the specification, filed in Paper No. 6, to mean that the aryl amine of the formula disclosed in that paragraph comprises the group X, which is defined as an alkyl having about 1 to about 12 carbon atoms. Support for the examiner's interpretation is found at page 10, lines 4-5, of the specification, which discloses that "the arylamine alkyl contains from about 1 to about 12 carbon atoms," where the alkyl is the substituent group X in the formula disclosed in that paragraph.

If applicants do not agree with the examiner's definition, they should clearly state so, and show where there is antecedent basis in the specification for their definition.

3. Claim 27 has been withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicants have timely traversed the restriction requirement in Paper No. 4.

In Paper No. 6, applicants reassert without arguments their traversal to the restriction required set forth in Paper No. 4 mailed on Mar. 17, 2003. However, as discussed in the office action mailed on Apr. 23, 2003, Paper No. 5, paragraph 1, applicants have not controverted the reasons set forth in the restriction requirement that the inventions of Groups I and II are patentably distinct. Applicants did not distinctly and specifically point out the reasons on which they based their conclusion that the restriction requirement is in error. Thus, the requirement is still deemed proper and stands.

4. The objections to the specification, set forth in Paper No. 5, paragraph 2, items (4) and (5), have been withdrawn in response to the amendment to the paragraphs beginning at page 8, line 14, and page 13, line 23, of the specification, filed in Paper No. 6.

The objections to the specification, set forth in Paper No. 5, paragraph 3, items (2), (3), and (5), have been withdrawn

in response to the amendments to claims 15, 16, 22, and 23 filed in Paper No. 8.

The objection to the specification, set forth in Paper No. 5, paragraph 3, item (6), has been withdrawn in response to applicants' comments in Paper No. 6, page 16, that the disclosure at page 6, lines 22-24, of the specification, discloses an overcoating layer placed over the cross-linked silicone.

The rejection of claims 4, 5, and 19 under 35 U.S.C. 112, second paragraph, set forth in Paper No. 5, paragraph 5, has been withdrawn in response to the amendment to claim 1 from which claims 4 and 5 depend, and the amendment to claim 19.

The rejection of claims 15 and 16 under 35 U.S.C. 112, first paragraph, set forth in Paper No. 5, paragraph 7, has been withdrawn in response to the amendments to claims 15 and 16.

5. The disclosure is objected to because of the following informalities:

(1) The specification at page 5, lines 8-10, discloses "a hole blocking layer wherein" (emphasis added) the reference labels "a" through "d" have particular numerical values. It is not clear what is meant by the passage. It is not clear whether the indefinite article in the phrase "a hole blocking layer" (emphasis added) refers to the previously described hole blocking layer comprising the crosslinked polymer of formula (III) or to

another hole blocking layer comprising another embodiment of the polymer of formula (III). Clarification is requested.

(2) The specification at page 5, lines 10-17, discloses "a hole blocking layer wherein" (emphasis added) A, B, D, and F may present particular organic groups. It is not clear what is meant by the passage. It is not clear whether the indefinite article in the phrase "a hole blocking layer" (emphasis added) refers to the previously recited hole blocking layer comprising the crosslinked polymer of formula (III) or to another hole blocking layer comprising another embodiment of the polymer of formula (III). Clarification is requested.

(3) The specification at page 6, line 15, discloses the charge transport polymer polysebacoyl-TBD (PSEB). It is not clear what is the polymer polysebacoyl-TBD, which the specification neither defines nor describes.

(4) In the only example in the specification, the hole blocking layer is said to comprise a polymer of Formula (III). See the specification, page 18, line 26, to page 19, line 1. The specification at page 3, line 26, to page 4, line 5, discloses that the polymer represented by Formula III is obtained by reacting a polymer of Formula I with an organosilane of Formula II. However, in the example, the hole blocking layer is obtained from a solution comprising 3-aminopropyltrimethoxy-silane. There is no disclosure of reacting the silane compound

with a polymer of Formula I. Thus, it is not clear how the blocking layer in the example comprises a polymer of Formula III.

It is noted that the example is not within the scope of the presently claimed invention because it does not comprise a cross-linked silicone rubber and a resilient, electrically insulating overcoating layer, as required in instant claims 1 and 2.

Appropriate correction is required.

Applicants' arguments filed in Paper No. 6 have been fully considered but they are not persuasive.

(1) and (2): Applicants assert that the amended paragraph beginning at page 3, line 21, of the specification, filed in Paper No. 6, overcomes the objections, and that support for the amendments is found at page 3, line 27, to page 4, line 2, of the specification, which states that the structure of the hydrolyzed silane in the hole blocking layer includes the structure described on page 4.

However, the paragraph beginning at page 6, does not address the objections. The paragraph does not clarify the ambiguities discussed in items (1) and (2).

(3): Applicants assert that "PSEB" is the abbreviation for polysebacoyl-TBD. Applicants argue that no specific definition is needed as the polymer structure would be readily ascertainable to one of ordinary skill in the art.

However, as discussed in the objection, the specification does not disclose what is meant by "polysebacoyl-TBD." As noted by applicants, the term "sebacoyl" has the chemical structure of $-OC(CH_2)_8CO-$. The term "polysebacoyl . . ." just means that the polymer comprises sebacoyl groups. The specification does not define the term "TBD." Nor does the specification disclose the chemical structure of the polymer. Nor does the specification disclose whether the polymer is a condensation or addition polymer. Applicants have not pointed to any disclosure in the specification as to what is meant by term "polysebacoyl-TBD," nor have they provided any evidence that the term is well known. Clarification is requested.

(4) Applicants assert that "upon review of the specification, one skilled in the art would be apprised of the compositions suitable." However, as discussed in the objection, the example does not state that a polymer of formula (I) is reacted with the aminosilane. The example merely states that "a hole blocking layer from a solution of 0.32 gram of 3-aminopropyltrimethoxylsilane in 9.2 grams of . . . mixture of tetrahydrofuran/ethanol/water. After drying at 135°C for 15 minutes, a hole blocking layer encompassed by Formula (III) . . . was obtained." The description in the example is incomplete. Furthermore, it is not clear what is being exemplified because

formula (I) at page 4 of the specification encompasses numerous polymers. Clarification is requested.

6. The disclosure is objected to because of the following informalities:

(1) The specification at page 7, lines 23-27, discloses that "positive charges are placed at the injecting contact; these charges are injected into the transport layer . . . . as shown in Fig. 2." However, the imaging member shown in Fig. 2 comprises a hole blocking layer **3** between the charge injecting surface **2** and the charge transport layer **5**. The blocking layer **3** would not permit charges to be injected from the charge injecting surface **2** to the charge transport layer **5**. Therefore, it is not clear how charges are injected from the injection surface **2** to the charge transport layer **5** as disclosed in the instant specification. (The specification at page 12, lines 3-6, disclose that a "hole blocking layer [is] capable of forming a barrier to prevent hole injection from the conductive layer to the opposite photoconductive layer." US 5,916,720 (Springett) at col. 3, lines 11-14, identifies a "hole" as a "positive charge." The specification at page 17, lines 7-8, and 29-30, discloses that the charge blocking layer may be interposed between the conductive layer and the photogenerating layer. The

specification at page 18, lines 6-7, disclose that "[a] purpose of this layer [the charge blocking layer] is to prevent charge injection from the substrate during and after charging." Thus, base on the evidence on record, a hole blocking layer is a charge blocking layer.)

(2) The paragraph beginning at page 8, line 14, of the specification, filed in Paper No. 6, was amended to disclose that the cross-linked silicone contains cross linking of "about 6% to about 9%" (emphasis added). It is not clear what is the basis of the cross linking (e.g., mole, weight, number, etc.).

Appropriate correction is required.

7. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

(1) In claims 1 and 2, the recitation "a resilient, electrically insulating overcoating layer" lacks antecedent basis in the specification. See page 3, lines 18-20, of the specification, which discloses a "resilient, electrically insulating overcoating layer comprising an elastomer." The layer recited in instant claims 1 and 2 is broader than the disclosed overcoating layer because it includes overcoating layers that do not comprise an elastomer.

(2) In claim 17, the recitation "a charge transporting polymer" lacks antecedent basis in the specification. See page 6, lines 14-15, of the specification, which discloses a charge transporting polymer comprising polyethercarbonate (PEC) or polysebacoyl-TBD (PSEB). The term "a charge transporting polymer" recited in instant claim 17 is broader than the disclosed charge transporting polymer because it includes other charge transporting polymers that are not PEC or PSEB.

Applicants' arguments filed in Paper No. 6 have been fully considered but they are not persuasive.

Applicants assert that the specification provides antecedent basis for the recitations recited in the instant claims, and that the "examiner's contention that the claim language is broader than the disclosure [in the specification] is an improper attempt to read a limitation in the specification into the claims." Applicants also assert that "since the specification of the application includes the claims as filed, support clearly exists in the application."

Applicants miss the point. 37 CFR 1.75(d)(1) states that "the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description" (emphasis added). In other words, the term or phrase must find clear support or antecedent basis in the

description of the specification. For the reasons discussed in items (1) and (2), the specification does not provide antecedent basis for the recitations recited in instant claims 1, 2, and 17. Applicants have not indicated where in the specification there is antecedent basis for the broad recitations in those claims.

Applicants are reminded that to overcome the above objections, they merely have to incorporate the objected limitations recited in the originally filed claims in appropriate locations in the specification.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 is indefinite for the following reasons:

(1) The phrase "Z is selected from the group consisting of chloride . . . acyloxy of, for example, from about 2 to about 6 carbon atoms, aryloxy of, for example, from about 6 to about 10 carbon atoms" is indefinite for improper Markush language.

Proper Markush language is "R is selected from the group consisting of . . . and . . ." or "R is . . . or . . ." MPEP 2173.05(h) (8th ed., Rev. 1, Feb. 2003). The phrase is missing the conjunction "and". It is not clear whether the group is closed or whether applicants intend the recited Markush group to contain additional components. Thus, it is not clear what is the scope of the instant claim. The "for example" language is regarded as surplusage that does not limit the claim.

(2) The phrase "a hole blocking layer, wherein a is from about 0 . . . d is from about 0.01 to about 0.95" (emphasis added) is indefinite for lack of unambiguous antecedent basis. It is not clear whether the indefinite article in the phrase "a hole blocking layer" (emphasis added) refers to the previously recited hole blocking layer comprising the crosslinked polymer of formula (III) or to another hole blocking layer comprising another embodiment of the polymer of formula (III). Clarification is requested.

(3) The phrase "a photoconductive imaging member, wherein A is selected from the group of . . . B, D, and F are independently . . ." (emphasis added) is indefinite for lack of unambiguous antecedent basis. Claim 1 does not recite a photoconductive imaging member. Rather, claim 1 merely recites "an imaging member." Moreover, it is not clear how a photoconductive imaging member is described by the terms "A, B, D, and F" because

claim 11 previously recites that those terms represent the segments of the polymer backbone of the polymers of formula I and III, and there is no necessary requirement that the "photoconducting imaging member" contains said polymer of formula III.

(4) The phrase "B, D and F are independently selected from the group consisting of . . . wherein R' . . ." The phrase is missing the conjunction "and" between the second and third chemical structures. It is not clear whether the group is closed or whether applicants intend the recited Markush group to contain additional components. Thus, it is not clear what is the scope of the instant claim.

10. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

11. Claims 1 and 4-26 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

(1) Instant claims 1 and 10 recite the presence of a hole blocking layer and an optional "charge blocking layer."

The originally filed specification does not provide an adequate written description of an imaging member comprising a hole blocking layer and an optional charge blocking layer, as recited in the instant claims. The originally filed specification at page 3, lines 21 and 23, discloses that the imaging member may comprise an optional hole blocking layer and an optional charge trapping layer. Originally filed claim 1 recites an imaging member comprising an optional hole blocking layer and an optional charge trapping layer. Originally filed Fig. 1 shows an embodiment of the instant claims, an imaging member comprising a substrate having thereon in order a hole blocking layer **3**, an adhesive layer **4**, a charge transport layer **5**, a charge generation layer **6**, a trapping layer **7**, a cross-linked silicone rubber layer **8**, and an overcoating layer **9**. Thus, on the present record, the originally claimed optional charge trapping layer is not the same as the optional charge (or hole) blocking layer recited in the instant claims. There is no disclosure in the originally filed specification stating that the originally claimed optional charge trapping layer is the same as the optional charge (or hole) blocking layer recited in the instant claims. Moreover, there is no disclosure in the

originally filed specification of an imaging member comprising two hole blocking layers. (The specification at page 12, lines 3-6, disclose that a "hole blocking layer [is] capable of forming a barrier to prevent hole injection from the conductive layer to the opposite photoconductive layer." US 5,916,720 (Springett) at col. 3, lines 11-14, identifies a "hole" as a "positive charge." The specification at page 17, lines 7-8, and 29-30, discloses that the charge blocking layer may be interposed between the conductive layer and the photogenerating layer. The specification at page 18, lines 6-7, disclose that "[a] purpose of this layer [the charge blocking layer] is to prevent charge injection from the substrate during and after charging." Thus, based on the evidence on the present record, a hole blocking layer is a charge blocking layer. US 4,291,110 (Lee), which is listed on the form PTO-1449 in Paper No. 2 filed on Dec.14, 2001, discloses at col. 2, lines 15-18, that a hole (or charge) trapping layer "prevents charges from migrating from the interface between the [charge] generating layer and the overcoating insulating layer to the injecting electrode." According to Lee, a charge injection layer appears to have a different function from that of the hole or charge blocking layer described in the instant specification.)

(2) Instant claim 15 recites that the charge transport layer of claim 1 "includes at least one substituent, X, with from about 1 to about 12 carbon atoms."

Instant claim 16 recites that the charge transport layer of claim 1 "includes at least one substituent, X, with from about 1 to about 5 carbon atoms." Applicants assert that support for said layers is found in the specification at page 10, lines 5-6, of the specification.

The originally filed specification does not provide an adequate written description of said charge transport layers. The originally filed specification at page 10, lines 5-6, discloses that the charge transport layer may comprise an aryl amine of the formula disclosed at page 10, line 1, where the substitute group X in the formula may be an alkyl group containing from about 1 to about 12 carbons or from about 1 to about 5 carbon atoms. The originally filed specification does not disclose that the charge transport layer comprises "at least one substituent X" as broadly recited in the instant claims. The recitation is not limited to the particular aryl amine of the formula disclosed at page 6, line 1, of the specification, but includes other components, such as solvents comprising from 1 to 12 or 5 carbon atoms.

(3) Instant claim 19 recites "a resinous binder comprising polysebacoyl" (emphasis added). Applicants assert that the

specification provides support for said binder at page 6, lines 4-15, of the specification.

The originally filed specification does not provide an adequate written description of said binder comprising polysebacoyl. The originally filed specification at page 6, lines 4-15, discloses that a "charge transporting polymer comprises . . . polysebacoyl-TBD (PSEB)." The specification at page 10, lines 8-9, discloses that the charge transport layer may comprise a "resinous binder selected from the group consisting of polycarbonates and polystyrenes." The specification at page 15, liens 4-7, discloses that the polymer binder material for the charge transport layer may include "polycarbonates, acrylate polymers, vinyl polymers, cellulose polymers, polyesters, polysiloxanes, polyamides, polyurethanes and epoxies as well as block, random or alternating copolymers thereof." The originally filed specification does not disclose that the charge transport layer comprises the broad "resinous binder comprising polysebacoyl" as recited in instant claim 19. The "resinous binder comprising polysebacoyl" recited in instant claim 19 is broader than the disclosed polysebacoyl-TBD because it includes a binder resin not comprising polysebacoyl-TBD.

12. Claim 14 is objected to because of the following informalities:

The recitation of the conjunction "and" in the phrase "layer and contains aryl amines" (emphasis added) should be deleted.

Appropriate correction is required.

13. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

14. The examiner notes that because US 6,287,737 B1 (Ong'737) qualifies as a reference under a 35 U.S.C. 102(a), as well as 102(e), it is available under 35 U.S.C. 103(a) and 103(c). Rejections over Ong'737 are set forth infra.

15. Claims 1, 2, 7-9, 22-24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,600,673 (Hendrickson) combined with (1) US 6,210,767 B1 (Knauf), (2) Grant & Hackh's Chemical Dictionary, fifth edition, pp. 293, 503, and 531, (3) Borsenberger et al., Organic Photoreceptors for Imaging Systems, pp. 289-292, and (4) US 5,871,877 (Ong'877).

Hendrickson discloses a photoconductive imaging member that meets the compositional limitations recited in the instant claims, but for the presence of a hole blocking layer. Hendrickson's imaging member comprises a conductive substrate, such as an aluminized polyester substrate, a photoconductive layer, and a topcoat comprising a cured film-forming silicone

polymer. Col. 2, lines 45-48; col. 3, lines 36-58; and example 3 at cols. 10-11. The photoconductive layer may have a bilayer structure comprising a charge generating layer and a charge transporting layer. Col. 2, lines 62-67. The crosslinked silicone polymer is obtained by curing (i.e., crosslinking) the material marked or associated with the trademark SYL-OFF 23, which is identified as a silanol terminated polydimethylsiloxane within the scope of formula II disclosed at col. 3, lines 40-59. See col. 10, lines 19-20. SYL-OFF 23 is also identified as a curable "silicone rubber" polymer. See Knauf, col. 3, lines 54-56. Hendrickson discloses that its imaging member provides 100% toner image transfer with a resolution in excess of 200 line pairs/mm. Col. 2, lines 16-18, and example 3.

Hendrickson does not identify the surface of its conductive substrate having a charge injection surface as recited in instant claims 1 and 2. However, Borsenberger teaches that "usually a thin blocking layer is interposed between the electrode [the conductive substrate or layer] and the photoreceptor [e.g., the charge transport layer and the charge generation layer, or a single layer] to <u>prevent charge injection</u>" (emphasis added). Borsenberger, paragraph bridging pages 290 and 291, and Fig. 1. Thus, it appears that the surface of Hendrickson's conductive substrate is a charge injection surface as recited in the instant

claims. The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

Hendrickson further discloses an imaging process comprising the steps of (1) charging its imaging member and (2) imagewise exposing the charged imaging member to light to dissipate the charge on the areas exposed to light. Col. 1, lines 37-43, and example 3, at col. 10, lines 57-59. Thus, Hendrickson demonstrates that its topcoat comprising the crosslinked silicone rubber marked with SYL-OFF 23 is "substantially transparent to activating radiation" as recited in instant claim 26.

Hendrickson does not disclose that its topcoat is electrically insulating or resilient as recited in instant claims 1, 2, and 26. However, as discussed above, Hendrickson's topcoat layer comprises the crosslinked silanol terminated polydimethylsiloxane marked with SYL-OFF 23, which is identified as a silicone rubber. The word "resilient" is commonly defined as "elastic, rebounding." The term "silicone rubber" is usually defined as "a silicone that retains its elastic properties between -50 and +291 [sic: no scale is provided]." See Grant & Hackh's Chemical Dictionary, pages 503 and 531. Thus, because a silicone rubber is defined as being elastic, it is reasonable to conclude that Hendrickson's crosslinked silicone rubber is also "resilient." The burden is on applicants to prove otherwise. Fitzgerald, supra.

Furthermore, Hendrickson's crosslinked silicone rubber does not appear to comprise any groups that would render it electrically conductive. Thus, it is reasonable to presume that Hendrickson's topcoat is also electrically insulating. The burden is on applicants to prove otherwise.

Instant claim 24 recites that the crosslinked silicone rubber prior to crosslinking is "dimethyl polysiloxane hydrolyzate." The term "hydrolyzate" is usually applied to a substance that has been obtained by hydrolysis. Hydrolysis is a decomposition reaction caused by water resulting in the formation of a hydroxy group. See Grant & Hackh's Chemical Dictionary, page 293. Thus, the dimethyl polysiloxane hydrolyzate recited in instant claim 24 is described in product-by-process format. Neither Hendrickson nor Knauf discloses that SYL-OFF 23 is a dimethylpolysiloxane hydrolyzate. However, as discussed supra, Hendrickson identifies SYL-OFF 23 as a silanol (-SiOH) terminated polydimethylsiloxane. In other words, SYL-OFF 23 has a terminal hydroxy group. Thus, SYL-OFF 23 appears to be the same or similar to the dimethyl polysiloxane hydrolyzate recited in instant claim 24. The burden is on applicants to prove otherwise. In re Marosi, 218 USPQ 289 (Fed. Cir. 1983); In re Thorpe, 227 USPQ 964 (Fed. Cir. 1985); MPEP 2113.

As discussed supra, Hendrickson does not disclose that its imaging member comprises a hole blocking layer as recited in the

instant claims. However, as discussed supra, the use of a blocking layer interposed between the conductive substrate and the photoconductive layer (e.g., the charge transport layer and the charge generation layer) to prevent charge injection is well-known in the art. See Borsenberger, paragraph bridging pages 290 and 291, and Fig. 1.

Ong'877 teaches a hole-blocking layer comprising a crosslinked silicone polymer. Col. 3, line 65, to col. 5, line 18. The hole-blocking layer has a thickness of about 2 to 2.5 μm, which is within the thickness range recited instant claim 8. Col. 20, lines 60-66. Ong'877 further discloses that the hole-blocking layer may have a thickness of about 0.1 to about 5 μm. Col. 5, lines 20-21. The thickness value of about 0.1 μm is within the range of about 0.005 to 0.3 μm recited in instant claim 9. Accordingly to Ong'877, its hole blocking layer is durable and solvent resistant. Col. 3, lines 58-59. Ong'877 shows that its hole blocking layer shows effective blockage of charge injection, which significantly lowers the dark decay in imaging members compared to imaging members not comprising its hole blocking layer. See the table at col. 12 and accompanying text.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Borsenberger and Ong'877, to incorporate Ong'877's hole blocking layer between the

conductive substrate and the photoconductive layer in the imaging member of Hendrickson, because that person would have had a reasonable expectation of successfully obtaining an electrophotographic imaging member having the benefits disclosed by Ong'877.

16. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hendrickson combined with (1) Knauf, (2) Grant & Hackh's Chemical Dictionary, fifth edition, pp. 293, 503, and 531, (3) Borsenberger et al., Organic Photoreceptors for Imaging Systems, pp. 289-292, and (4) Ong'877, as applied to claim 1 above, further combined with US 4,664,995 (Horgan).

Hendrickson combined with Ong'877 and the other cited references renders obvious an electrophotographic imaging member as described in paragraph 15 above, which is incorporated herein by reference.

Hendrickson does not exemplify a charge injection surface comprising gold, graphite, or carbon as recited in the instant claims. However, as discussed in paragraph 15, Hendrickson discloses a conductive substrate comprising an aluminized polyester substrate. Hendrickson further teaches that the conductive substrate can be any system well known in the art, such as support insulating layers comprising a thin conductive coating. Col. 2, lines 49-55.

Horgan discloses that conductive coatings used to make conductive substrates used in electrophotographic imaging members typically include aluminum, titanium, gold, carbon black, graphite, and the like. Col. 3, line 68, to col. 4, line 3.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Horgan, to use an equivalent conductive coating comprising gold, carbon black, or graphite as the conductive coating in the imaging member rendered obvious over the combined teachings of Hendrickson, Ong'877, and the other cited references, because that person would had a reasonable expectation of successfully obtaining an electrophotographic imaging member having the benefits disclosed by both Hendrickson and Ong'877.

17. Applicants' arguments filed in Paper No. 6 with respect to the rejections over Hendrickson in paragraphs 15 and 16 above have been fully considered but they are not persuasive.

Applicants argue that Hendrickson does not disclose a charge injection surface and a hole blocking layer as now recited in instant claims 1 and 2.

However, for the reasons discussed in the rejection in paragraph 15 above, the surface of Hendrickson's conductive substrate is a charge injection surface as recited in the instant claims. In addition, Borsenberger teaches that it is well known

in the art to use a hole blocking layer in electrophotographic imaging members to prevent the injection of charge from the conductive support to the photoconductive layer. Ong'877 teaches a particular hole blocking layer, and provides reason, suggestion, and motivation of using its hole blocking layer in electrophotographic imaging members. Thus, for the reasons discussed in the rejections in paragraphs 15 and 16 above, the imaging members recited in the instant claims are obvious over the cited prior art.

18. Claims 1, 2, 6-9, 11-16, 20-24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,287,737 B1 (Ong'737) combined with (1) Borsenberger et al., Organic Photoreceptors for Imaging Systems, pp. 289-292, (2) US 5,124,220 (Brown), (3) Hendrickson, (4) Knauf, and (5) Grant & Hackh's Chemical Dictionary, fifth edition, pages 293, 503, and 531.

Ong'737 discloses a photoconductive imaging member comprising in order, (1) a conductive substrate, (2) a hole-blocking layer, (3) an adhesion layer, (4) a charge generation layer, and (5) a charge transport layer. See example IV at cols. 29-30.

(1) The substrate comprises a 75-μm thick titanized MYLAR substrate. Col. 29, line 44. The thickness is within the range of about 75 to about 275 μm recited in instant claim 6. Ong'737

further discloses that the substrate may be flexible, seamless, or rigid, and in the form of a plate, a cylinder, a scroll, or an endless belt, all of which are within the limitations recited instant claims 6 and 7. See Ong'737, col. 25, line 53, to col. 26, line 13.

(2) The hole-blocking layer comprises a crosslinked polymer that is within the compositional limitation of formula III recited in instant claim 11. The hole-blocking layer has a thickness of about 0.5 to 0.7 μm, which is within the thickness range recited instant claim 8. Col. 29, lines 45-51. Ong'737 further discloses that the hole-blocking layer may have a thickness of about 0.001 to about 5 μm, preferably from about 0.1 to 5 μm. Col. 8, lines 22-25. The thickness value of about 0.1 μm is within the range of about 0.005 to 0.3 μm recited in instant claim 9.

(3) The adhesive layer has a thickness of 0.05 μm, which is within the range recited in instant claim 12. Col. 29, lines 52-55.

(4) The charge generation layer comprises hydroxygallium phthalocyanine dispersed in a film forming binder, which is within the compositional limitation recited in instant claim 20. The layer has a thickness of 0.2 μm, which is within the range of about 0.2 to 0.7 μm recited in instant claim 21. Col. 29, lines 55-60.

(5) The charge transport layer comprises aryl amine charge transport molecules that are within the compositional limitation of the formula recited in instant claim 14, and are dispersed in a binder resin. Col. 29, lines 60-65. Ong'737 discloses that the binder resin is a highly insulating and transparent resin. Col. 27, lines 40-41 and 54-62.

Ong'737 discloses that its photoconductive imaging member has an "extended life" and "maintains conductivity for longer periods." Col. 3, lines 24-31.

Ong'737 does not disclose that the titanized surface of its substrate is a charge injecting surface. However, Borsenberger teaches that "usually a thin blocking layer is interposed between the electrode [the conductive substrate or layer] and the photoreceptor [e.g., the charge transport layer and the charge generation layer, or a single layer] to prevent charge injection" (emphasis added). Borsenberger, paragraph bridging pages 290 and 291, and Fig. 1. Ong'737's layer **1**, the conductive substrate or layer, has a thin hole blocking layer **2** interposed between the "electrode" and the photoreceptor (charge generation layer **4** and the charge generation layer **5**). Thus, it appears that the titanized surface of Ong'737's conductive substrate is a charge injection surface as recited in the instant claims. The burden is on applicants to prove otherwise. Fitzgerald, supra.

Ong'737 does not disclose that its imaging member further comprises an overcoat layer or a crosslinked silicone rubber as recited in instant claims 1 and 2.

Brown discloses a bilayer topcoat for organic photoconductive imaging members. Brown discloses that the bilayer topcoat comprises a polymeric barrier layer and a cross-linked silicone polymeric release layer. Col. 3, lines 60-63. Brown does not limit the type of photoconductive imaging member used. See col. 4, lines 45-47, which discloses that "organic photoconductive materials are well-known in the art, and the present invention is applicable to all such organic photoconductors." The crosslinked silicone polymeric release layer is the crosslinked material marked or associated with the trademark SYL-OFF 23 described in Hendrickson. Col. 6, lines 20-24. The discussion of Hendrickson's release layer in paragraph 15, supra, is incorporated herein by reference. As discussed in paragraph 15, supra, the material marked SYL-OFF 23 is identified as a curable silicone rubber, and the releasing layer (or topcoat) comprising SYL-OFF 23 is "substantially transparent to activating radiation." For the reasons discussed in paragraph 15, supra, it is reasonable to conclude that the release layer disclosed by Brown has the properties recited in instant claims 1, 2, and 26, and that SYL-OFF 23 appears to be

the same as the product recited in instant claim 24. The burden is on applicants to prove otherwise.

Brown discloses that its bilayer topcoat improves the removal of image toner as well as the excess or residual toner from the surface of the imaging member. Col. 4, lines 14-17. According to Brown, its bilayer topcoat protects the photoconductive imaging member and extends its useful life in imaging processes, in particular, processes involving liquid toners and thermally assisted toner transfer steps. Col. 1, lines 7-10, and col. 3, lines 64-67. The barrier layer protects the essential properties of both the organic photoconductor layer and the polymer release coating "by preventing or inhibiting the transport of material between these layers both during the manufacture of the photoconductor element and during its use within the electrophotographic process." Col. 4, lines 1-7.

It would have been obvious for a person having ordinary skill in the art to coat Brown's bilayer on the surface of the photoconductive imaging member disclosed by Ong'737, because that person would have had a reasonable expectation of successfully obtaining a photoconductive imaging member having the benefits disclosed by Brown.

19. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ong'737 combined with (1) Borsenberger et al.,

Organic Photoreceptors for Imaging Systems, pp. 289-292, (2) Brown, (3) Hendrickson, (4) Knauf, and (5) Grant & Hackh's Chemical Dictionary, fifth edition, pages 293, 503, and 531, as applied to claim 1 above, further combined with Horgan.

Ong'737 combined with Brown and the other cited references renders obvious a photoconductive imaging member as described in paragraph 18 above, which is incorporated herein by reference.

Ong'737 does not exemplify a charge injection surface comprising gold, graphite, or carbon as recited in the instant claims. However, as discussed in paragraph 18, Ong'737 discloses a conductive substrate comprising a MYLAR substrate comprising a titanized conductive surface layer. Ong'737 does not limit the type of conductive surface layer used in its conductive substrate. Col. 25, lines 60-64,

Horgan discloses that conductive coatings used to make conductive substrates used in electrophotographic imaging members typically include aluminum, titanium, gold, carbon black, graphite, and the like. Col. 3, line 68, to col. 4, line 3.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Horgan, to use an equivalent conductive coating comprising gold, carbon black, or graphite as the conductive surface coating in the imaging member rendered obvious over the combined teachings of Ong'737, Brown, and the other cited references, because that person would had a

reasonable expectation of successfully obtaining an electrophotographic imaging member having the benefits disclosed by both Ong'737 and Brown.

20. Claims 1, 2, 6-9, 12-16, 20-24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,871,877 (Ong'877) combined with (1) Borsenberger et al., Organic Photoreceptors for Imaging Systems, pp. 289-292, (2) Brown, (3) Hendrickson, (4) Knauf, and (5) Grant & Hackh's Chemical Dictionary, fifth edition, pages 293, 503, and 531.

Ong'877 discloses a photoconductive imaging member comprising in order, (1) a conductive substrate, (2) a hole-blocking layer, (3) an adhesion layer, (4) a charge generation layer, and (5) a charge transport layer. See example III at cols. 20-21.

(1) The conductive substrate comprises a 75-μm thick titanized MYLAR substrate. Col. 20, line 59. The thickness is within the range of about 75 to about 275 μm recited in instant claim 6. Ong'877 further discloses that the substrate may be flexible, seamless, or rigid, and in the form of a plate, a cylinder, a scroll, or an endless belt, all of which are within the limitations recited instant claims 6 and 7. See Ong'877, col. 17, lines 45-61.

(2) The hole-blocking layer comprises a crosslinked polymer. The hole-blocking layer has a thickness of about 2 to 2.5 μm, which is within the thickness range recited instant claim 8. Col. 20, lines 60-66. Ong'877 further discloses that the hole-blocking layer may have a thickness of about 0.1 to about 5 μm. Col. 5, lines 20-21. The thickness value of about 0.1 μm is within the range of about 0.005 to 0.3 μm recited in instant claim 9.

(3) The adhesive layer has a thickness of 0.05 μm, which is within the range recited in instant claim 12. Col. 20, line 67, to col. 21, line 2.

(4) The charge generation layer comprises hydroxygallium phthalocyanine dispersed in a film forming binder, which is within the compositional limitation recited in instant claim 20. The layer has a thickness of 0.2 μm, which is within the range of about 0.2 to 0.7 μm recited in instant claim 21. Col. 21, lines 3-8.

(5) The charge transport layer comprises an aryl amine charge transport molecule that is within the compositional limitation of the formula recited in instant claim 14, and are dispersed in a binder resin. Col. 21, lines 8-12. Ong'877 discloses that the binder resin is a highly insulating and transparent resin. Col. 19, lines 15-16 and 28-40.

Ong'877 discloses that its photoconductive imaging member has photosensitivity to near infrared radiations and has improved coating characteristics, "wherein the charge transport molecules do not diffuse, or there is minimum diffusion thereof into the photogenerating layer." Col. 3, lines 47-55.

Ong'877 does not identify the titanized surface layer as a charge injection surface as recited in instant claims 1 and 2. However, Borsenberger teaches that "usually a thin blocking layer is interposed between the electrode [the conductive substrate or layer] and the photoreceptor [e.g., the charge transport layer and the charge generation layer, or a single layer] to prevent charge injection" (emphasis added). Borsenberger, paragraph bridging pages 290 and 291, and Fig. 1. Ong'877's layer (1), the conductive substrate or layer, has a thin hole blocking layer (2) interposed between the "electrode" and the photoreceptor (charge generation layer (4) and the charge generation layer (5)). Thus, it appears that the titanized surface layer of Ong'877's conductive substrate is a charge injection surface as recited in the instant claims. The burden is on applicants to prove otherwise. Fitzgerald, supra.

Ong'877 does not disclose that its imaging member further comprises an overcoat layer or a crosslinked silicone rubber as recited in instant claims 1 and 2.

Brown discloses a bilayer topcoat for organic photoconductive imaging members. The discussion of Brown in paragraph 18 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art to coat Brown's bilayer on the surface of the photoconductive imaging member disclosed by Ong'877, because that person would have had a reasonable expectation of successfully obtaining a photoconductive imaging member having the benefits disclosed by Brown.

21. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ong'877 combined with (1) Borsenberger et al., Organic Photoreceptors for Imaging Systems, pp. 289-292, (2) Brown, (3) Hendrickson, (4) Knauf, and (5) Grant & Hackh's Chemical Dictionary, fifth edition, pages 293, 503, and 531, as applied to claim 1 above, further combined with Horgan.

Ong'877 combined with Brown and the other cited references renders obvious a photoconductive imaging member as described in paragraph 20 above, which is incorporated herein by reference.

Ong'877 does not exemplify a charge injection surface comprising gold, graphite, or carbon as recited in the instant claims. However, as discussed in paragraph 20, Ong'877 discloses a conductive substrate comprising a MYLAR substrate comprising a titanized conductive surface layer. Ong'877 does not limit the

type of conductive surface layer used in its conductive substrate. Col. 17, lines 41-45.

Horgan discloses that conductive coatings used to make conductive substrates used in electrophotographic imaging members typically include aluminum, titanium, gold, carbon black, graphite, and the like. Col. 3, line 68, to col. 4, line 3.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Horgan, to use an equivalent conductive coating comprising gold, carbon black, or graphite as the conductive surface coating in the imaging member rendered obvious over the combined teachings of Ong'877, Brown, and the other cited references, because that person would had a reasonable expectation of successfully obtaining an electrophotographic imaging member having the benefits disclosed by both Ong'877 and Brown.

22. Claims 1, 2, 6-9, 12-18, 20-24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,316,880 (Pai) combined with, (1) Borsenberger et al., Organic Photoreceptors for Imaging Systems, pp. 289-292, (2) Brown, (3) Hendrickson, (4) Knauf, and (5) Grant & Hackh's Chemical Dictionary, fifth edition, pages 293, 503, and 531.

Pai discloses a photoconductive imaging member comprising (1) a conductive substrate, (2) a hole-blocking layer, (3) an

adhesion layer, (4) a charge generation layer, and (5) a charge transport layer. See example VII at cols. 24-25.

(1) The conductive substrate comprises a polyethylene terephthalate film coated with a titanium layer. Col. 24, lines 46-49. Pai further discloses that the substrate may be an endless flexible belt, a web, a rigid cylinder, or a sheet, all of which are within the limitations recited instant claims 6 and 7. See Pai, col. 5, lines 10-13. The flexible belt may have a thickness of about 125 μm, which is within the range recited in instant claim 6. Col. 5, lines 16-17.

(2) The hole-blocking layer has a thickness of 100 Angstroms (i.e., 0.01 μm). Col. 24, lines 50-53. The thickness is within the ranges recited in instant claims 8 and 9.

(3) The adhesive layer has a thickness of 50 Angstroms (i.e., 0.005 μm), which is within the range recited in instant claim 12. Col. 24, lines 53-55.

(4) The charge generation layer comprises a vanadyl phthalocyanine dispersed in a film forming binder. The layer has a thickness of about 1 μm, which reads on the thickness of "about 0.7 μm" recited in instant claim 21. Col. 24, lines 56-61. Pai also discloses that the charge generation layer may have a preferred thickness of about 0.3 to about 3 μm. Col. 7, lines 58-59. The thickness of about 0.3 μm is within the range of about 0.2 to about 0.7 μm recited in instant claim 21.

(5) The charge transport layer comprises the arylamine charge transport molecules N,N'-diphenyl-N,N'-bis(3-methylphenyl)-(1,1'-biphenyl)-4,4'-diamine, dispersed in a polyethercarbonate transport polymer. Col. 24, lines 60-66. The arylamine charge transport component meets the compositional limitations recited in instant claims 13-16. The polyethercarbonate is within the compositional limitations recited in instant claims 17 and 18. The charge transport layer has a thickness of 30 μm, which is within the thickness range recited in instant claim 16.

Pai discloses that its photoconductive imaging member exhibits improved imaging operation during extended image cycling, integrity of layers underlying the charge transport layer, and high charge carrier mobilities. Col. 4, lines 10-27.

Pai does not identify the titanium surface layer as a charge injection surface as recited in instant claims 1 and 2. However, Borsenberger teaches that "usually a thin blocking layer is interposed between the electrode [the conductive substrate or layer] and the photoreceptor [e.g., the charge transport layer and the charge generation layer, or a single layer] to <u>prevent charge injection</u>" (emphasis added). Borsenberger, paragraph bridging pages 290 and 291, and Fig. 1. Pai's layer (1), the conductive substrate or layer, has a thin hole blocking layer (2) interposed between the "electrode" and the photoreceptor (charge

generation layer (4) and the charge generation layer (5)). Thus, it appears that the titanium surface layer of Pai's conductive substrate is a charge injection surface as recited in the instant claims. The burden is on applicants to prove otherwise. Fitzgerald, supra.

Pai does not disclose that its imaging member further comprises an overcoat layer or a crosslinked silicone rubber as recited in instant claims 1 and 2. However, Pai discloses that its imaging member may comprise an overcoat layer to improve the resistance to abrasion. Col. 20, lines 54-55. Pai further discloses that the overcoating layer is well-known in the art. Col. 20, lines 58-59.

Brown discloses bilayer topcoat for organic photoconductive imaging members. The discussion of Brown in paragraph 18, supra, is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art to coat Brown's bilayer on the surface of the photoconductive imaging member disclosed by Pai, because that person would have had a reasonable expectation of successfully obtaining a photoconductive imaging member having the benefits disclosed by Brown.

23. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pai combined with (1) Borsenberger et al.,

Organic Photoreceptors for Imaging Systems, pp. 289-292, (2) Brown, (3) Hendrickson, (4) Knauf, and (5) Grant & Hackh's Chemical Dictionary, fifth edition, pages 293, 503, and 531, as applied to claim 1 above, further combined with Horgan.

Pai combined with Brown and the other cited references renders obvious a photoconductive imaging member as described in paragraph 22 above, which is incorporated herein by reference.

Pai does not exemplify a charge injection surface comprising gold, graphite, or carbon as recited in the instant claims. However, as discussed in paragraph 22, Pai discloses a conductive substrate comprising a polyethylene terephthalate film coated with a titanium surface layer. Pai does not limit the type of conductive surface layer used in its conductive substrate. Col. 5, lines 35-51.

Horgan discloses that conductive coatings used to make conductive substrates used in electrophotographic imaging members typically include aluminum, titanium, gold, carbon black, graphite, and the like. Col. 3, line 68, to col. 4, line 3.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Horgan, to use an equivalent conductive coating comprising gold, carbon black, or graphite as the conductive surface coating in the imaging member rendered obvious over the combined teachings of Pai, Brown, and the other cited references, because that person would had a

reasonable expectation of successfully obtaining an electrophotographic imaging member having the benefits disclosed by both Pai and Brown.

24. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pai combined with (1) Borsenberger et al., Organic Photoreceptors for Imaging Systems, pp. 289-292, (2) Brown, (3) Hendrickson, (4) Knauf, and (5) Grant & Hackh's Chemical Dictionary, fifth edition, pages 293, 503, and 531, as applied to claim 15 above, further combined with US 5,356,743 (Yanus).

Pai combined with Brown and the other cited references renders obvious a photoconductive imaging member as described in paragraph 22 above, which is incorporated herein by reference.

Pai does not exemplify a charge transport comprising a binder comprising polysebacoyl as recited in instant claim 19. However, as discussed in paragraph 22, Pai discloses a charge transport layer comprising an aryl amine compound that meets the limitations recited in instant claim 15 dispersed in an aryl amine-containing charge transport polymer. Pai does not limit the type of charge transport polymer used in its charge transport layer. Pai discloses that "[a]ny suitable charge transporting polymer may be utilized in the charge transport layer." Col. 11, lines 24-26.

Yanus discloses a charge transporting polymer obtained by reacting the arylamine compound N,N'-diphenyl-N,N'-bis(3-hydroxyphenyl)-[1,1'-biphenyl]-4,4'diamine with sebacoyl chloride. Example III at col. 24. Yanus discloses that imaging members comprising its charge transporting polymer retain stable electrical properties during cycling, and exhibit a greater resistance to cracking and crazing induced by liquid ink carrier fluids. Col. 6, lines 49-52 and 66-68, and example V at col. 25.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Pai and Yanus, to use Yanus's charge transporting polymer comprising polysebacoyl as the charge transporting polymer in the imaging member rendered obvious over the combined teachings of Pai, Brown, and the other cited references, because that person would had a reasonable expectation of successfully obtaining an electrophotographic imaging member having the benefits disclosed by Pai and Yanus.

25. Applicants' arguments filed in Paper No. 6 with respect to the rejections set forth in paragraphs 18-24, supra, have been fully considered but they are not persuasive.

Applicants assert that none of the cited references, Ong'737, Ong'877, or Pai, teaches or suggests the use of a charge injecting surface as now recited in the instant claims.

However, for the reasons as discussed in the rejections, the conductive titanized surface layers in Ong'737, Ong'877, and Pai, are charge injecting surfaces. Thus, the rejections stand.

26. Claims 1, 2, 7-9, 13, 15, 16, and 22-26 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 5,556,730 (Nguyen) combined with (1) Hendrickson, (2) Knauf, (3) Grant & Hackh's Chemical Dictionary, fifth edition, pages 293, 503, and 531, (4) US 5,916,720 (Springett), and (5) Borsenberger et al., Organic Photoreceptors for Imaging Systems, pp. 289-292.

Nguyen discloses a positive charging photoconductive imaging member comprising a conductive aluminum coated MYLAR substrate, a charge transporting layer, a charge generating layer, a charge injection barrier layer, and a release layer comprising a crosslinked silicone polymer. Col. 13, lines 1-12, and example 9 at col. 15. The charge transporting layer comprises an arylamine charge transport compound that is within the compositional limitation recited in instant claims 13, 15, and 16. The charge transport layer has a thickness of about 15 μm, which is within the layer thickness range recited in instant claim 16. The charge injection barrier layer comprises a polyvinylbutyral resin and has a thickness of 0.5 μm. Col. 14, lines 30-43. The layer thickness of 0.5 μm is within the layer thickness ranges recited

in instant claims 8 and 9. The release layer has a layer thickness of 3 μm. Col. 13, lines 1-12. Nguyen further discloses that the thickness of the release layer may range from 1 to 8 μm, preferably from 3 to 5 μm. Col. 12, lines 1-4. The values of 5 μm and 8 μm are within the range of "about 5 to about 10 micrometers" recited in instant claim 25. The crosslinked silicone polymer is obtained by crosslinking the material marked or associated with the trademark SYLOFF 23. Hendrickson identifies SYLOFF 23 as a silanol terminated polydimethylsiloxane within the scope of formula II disclosed at Hendrickson, col. 3, lines 40-59. See Hendrickson, col. 10, lines 19-20. SYLOFF 23 is also identified as a curable "silicone rubber" polymer. See Knauf, col. 3, lines 54-56.

Nguyen does not identify its charge injection barrier as a hole blocking layer. However, accordingly to Nguyen, the charge injection barrier layer prevents the injection of unwanted positive charge from the surface of the photoconductive member into the bulk of the member. Col. 4, lines 6-12. Applicants' specification at page 12, lines 3-6, disclose that a "hole blocking layer [is] capable of forming a barrier to prevent hole injection from the conductive layer to the opposite photoconductive layer." US 5,916,720 (Springett) at col. 3, lines 11-14, identifies a "hole" as a "positive charge." Thus, because Nguyen's charge injection barrier layer prevents the

injection of positive charges (or holes) from the surface of the photoconductor to the bulk of the photoconductor, it appears that Nguyen's charge injection barrier layer is a "hole blocking layer" as recited in the instant claims. The burden is no applicants to prove otherwise. Fitzgerald, supra.

Nguyen does not identify the aluminum surface layer on its substrate as a charge injection surface as recited in instant claims 1 and 2. However, Borsenberger teaches that "usually a thin blocking layer is interposed between the electrode [the conductive substrate or layer] and the photoreceptor [e.g., the charge transport layer and the charge generation layer, or a single layer] to prevent charge injection" (emphasis added). Borsenberger, paragraph bridging pages 290 and 291, and Fig. 1. Thus, it appears that the aluminum surface coated layer of Nguyen's conductive substrate is a charge injection surface as recited in the instant claims. The burden is on applicants to prove otherwise. Fitzgerald, supra.

Nguyen further discloses an imaging process comprising the steps of (1) charging its imaging member and (2) imagewise exposing the charged imaging member to light to dissipate the charge on the areas exposed to a laser. Col. 13, lines 23-28. Thus, Nguyen demonstrates that its release layer comprising the crosslinked silicone rubber SYLOFF 23 is "substantially

transparent to activating radiation" as recited in instant claim 26.

Nguyen does not disclose that its release layer is electrically insulating or resilient as recited in instant claims 1, 2, and 26. However, as discussed above, Nguyen's release layer comprises the crosslinked material, marked or associated with the mark SYL-OFF 23. For the reasons discussed in paragraph 15, supra, which are incorporated herein by reference, it is reasonable to conclude that Nguyen's cross-linked silicone rubber is also resilient as recited in instant claims 1 and 2. Furthermore, it is reasonable to presume that Nguyen's release layer is also electrically insulating as recited in instant claims 1, 2, and 26. The burden is on applicants to prove otherwise.

Instant claim 24 recites that the crosslinked silicone rubber prior to crosslinking is "dimethyl polysiloxane hydrolyzate." For the reasons discussed in paragraph 15, supra, which are incorporated herein by reference, SYLOFF 23 appears to be the same or similar to the dimethyl polysiloxane hydrolyzate recited in instant claim 24. The burden is on applicants to prove otherwise. Marosi, supra; Thorpe, supra; MPEP 2113.

Applicants' arguments filed in Paper No. 6 have been fully considered but they are not persuasive.

Applicants argue that Nguyen does not disclose a charge injection surface and a hole blocking layer as recited in instant claims 1 and 2.

However, as for the reasons discussed in the above rejection, the aluminum surface coating layer of Nguyen's conductive substrate is a charge injection surface as recited in the instant claims. As discussed in the rejection, the charge injection barrier layer disclosed by Nguyen blocks the injection of positive charges or holes. Thus, Nguyen's charge injection barrier layer meets the limitation of a hole blocking layer as recited in the instant claims. Thus, the rejection stands.

27. Claims 1, 2, 4-9, 13-16, and 21-26 are rejected under 35 U.S.C. 103(a) as unpatentable over US 4,251,612 (Chu) combined with (1) Nguyen, (2) Hendrickson, (3) Knauf, and (4) Grant & Hackh's Chemical Dictionary, fifth edition, pages 293, 503, and 531.

Chu discloses a positive charging photoconductive imaging member comprising (1) a substrate, (2) a charge injecting layer, (3) a charge transport layer, (4) a charge generation layer, and (5) an insulating organic overcoat layer. See example 1 at cols. 10-11.

(1) The substrate has a thickness of about 125 μm, which is within range recited in instant claim 6. Col. 10, line 55. Chu

further discloses that the substrate may be flexible or rigid, and may be configured as a plate, a cylindrical drum, a scroll, or an endless flexible belt, all of which are within the limitations recited in instant claims 6 and 7. Col. 4, lines 38-42.

(2) The charge injecting layer comprises carbon black dispersed in an adhesive polymer. Col. 10, lines 49-54. The charge injecting layer is within the compositional limitations recited in instant claims 4 and 5.

(3) The charge transport layer comprises aryl amine molecules that are within the compositional limitation of the formula recited in instant claims 14-16, and are dispersed in a binder resin. Col. 10, lines 57-64. Chu further discloses that the binder resin is a highly insulating and transparent organic resin. Col. 6, lines 34, and col. 7, lines 4-20. Chu discloses that the charge transport layer may have a thickness of preferably about 20 to about 50 μm, which is within the thickness range recited in instant claim 16.

(4) The charge generation layer comprises amorphous arsenic triselenide and has a thickness of about 0.6 μm. Col. 10, line 64. The thickness of about 0.6 μm is within the range of about 0.2 to about 0.7 μm recited in instant claim 21. Chu further discloses that the charge generation layer may comprise

organic charge carrier materials such as phthalocyanines. Col. 7, lines 32-45, and example VIII at cols. 12-13.

Chu does not disclose that its imaging member comprises a crosslinked silicone rubber as recited in instant claims 1 and 2. However, Chu discloses that the insulating organic overcoat layer (a) protects the charge generation layer from being contacted by toner and by ozone generated during the imaging cycles. Col. 7, lines 49-52. The overcoat layer must also (b) prevent charges from penetrating through it into the charge generation layer or being injected into it by the latter. Col. 7, lines 52-55. Chu further discloses that the overcoat layer typically has (c) a thickness from about 5 to about 25 μm. Col. 7, lines 49-50. Chu discloses that the material selected to make up said overcoat layer (d) should not be one which will dissolve or react with the materials in the charge generation layer and the charge transport layer. Col. 7, lines 66-68.

Nguyen discloses an overcoat layer for positive charging organic photoconductors comprising a charge injection barrier layer and a release layer comprising a crosslinked silicone rubber marked or associated with the mark SYLOFF 23. The discussion of Nguyen's charge injection barrier layer and release layer in paragraph 26, supra, is incorporated herein by reference.

As discussed in paragraph 26 above, Nguyen further discloses that the thickness of the release layer may range from 1 to 8 μm, preferably from 3 to 5 μm. Col. 12, lines 1-4. The values of 5 μm and 8 μm are within the range of "about 5 to about 10 micrometers" recited in instant claim 25, and within the thickness range (3) taught by Chu.

According to Nguyen, charge instability may be caused by the chemical vulnerability of the positive charging photoconductors, e.g., photoconductors where the charge generation layer is coated over the charge transport layer, to operating conditions such as corona charging, ozone attack, humidity, etc. Because the charge generation layer is exposed to a corona during charging, it is expected that the photoconductor is more likely to exhibit deteriorated charge characteristics due to surface charge injection into the bulk of the photoconductor. Col. 3, lines 24-35. Nguyen discloses that its barrier layer solves the charge instability problem of positive charging photoconductors and provides photoconductors with long-life with more than 50,000 good cycles under severe test conditions. Col. 4, lines 22-23 and 27-29, and example 4. Nguyen discloses that its barrier layer is capable of preventing the injection of unwanted positive charge from the surface of the photoconductor into the bulk of the photoconductor without stopping the migration of negative charge from the photoconductor bulk to the

surface. Col. 4, lines 6-14. Nguyen discloses that its barrier layer is robust enough in the operating environment to withstand high humidity and high temperatures. Col. 4, lines 17-18. Nguyen discloses that its charge injection barrier layer prevents the poisoning of the photoconductor by the leaking of crosslinking catalyst or the other chemicals from the release layer of polysiloxanes. Col. 4, lines 2-5. Nguyen further discloses that the release layer improves the toner transfer efficiency. Col. 3, lines 1-4. Thus, Nguyen's charge injection barrier satisfies Chu's requirements (1), (2), and (4).

It would have been obvious for a person having ordinary skill in the art to coat Nguyen's charge injection barrier layer and release layer on the surface of the photoconductive imaging member disclosed by Chu, because that person would have had a reasonable expectation of successfully obtaining a long-life photoconductive imaging member having charge stability under conditions of high humidity and high temperature.

Applicants' arguments filed in Paper No. 6 have been fully considered but they are not persuasive.

Applicants argue that the combined teachings of the cited references do not teach or suggest a hole blocking layer as now recited in instant claims 1 and 2.

However, as for the reasons discussed in the above rejection, the charge injection barrier layer disclosed by Nguyen

blocks the injection of positive charges or holes. Thus, Nguyen's charge injection barrier layer meets the limitation of a hole blocking layer as recited in the instant claims. Thus, the rejection stands.

28. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (703) 308-3625. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (703) 308-2464. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9311 (Rightfax) for after final faxes, and (703) 872-9310 for other official faxes.

Any inquiry of papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Palestine Jenkins, whose telephone number is (703) 308-3521.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

JANIS L. DOTE
PRIMARY EXAMINER
GROUP ~~1500~~ 1700

JLD
November 20, 2003